

REPORT

ON THE INTENDED

GRAND SURRY CANAL

NAVIGATION,

WITH GENERAL ESTIMATE, &c. &c.

By R. DODD, ENGINEER.

L O N D O N:

PRINTED BY ORDER OF THE SUBSCRIBERS,

BY S. GOSNELL, LITTLE QUEEN STREET, HOLBORN.

1800.

46
11 3
711



*To the NOBILITY and GENTRY Subscribers to the proposed
GRAND SURRY CANAL, the LANDHOLDERS and
others commercially interested therein.*

MY LORDS AND GENTLEMEN,

ACCORDING to the honour of your request, I have made a general survey of the intended canal navigation, as proposed to pass from the most eligible part of the river Thames, across the county of Surry, and pursuant to your instructions have explored the country for, and pointed out such collateral cuts as appear useful. The measure I find to be extremely practicable, and the benefits likely to accrue from its execution very flattering; which whether considered as to the commercial and agricultural advantages likely to arise from it to the particular parts through which the canal passes, to the whole county, or the nation in general, are of the first importance, and such as must strike every reflecting mind with a conviction of its vast utility.

The beneficial advantages to be derived from canals have been so fully proved by those already completed, and are now so generally known, as to render it unnecessary to dwell upon them: suffice it to say, they have caused the wealth and improvement of countries, the rise and enlargement of manufactures, the increase and extension of commerce; they have given employ to the poor, they have increased

creased population, industry, and agriculture, to a great extent; and in short, in many places they have perfectly changed the face of the country and the manners of the people for the better where they have passed: much of which I hope and have every cause to think will be effected by this canal.

Three considerations in this Report will naturally present themselves for investigation: 1st, *The best line for the canal to pass through the country*; 2d, *The expense of making the canal, with the presumed tonnage or trade to pass on it to justify its execution*; 3d, *Its advantages in a commercial and agricultural point of view*.

First then I find the most proper line to be nearly as follows (subject to such variations and improvements as may hereafter be found advisable): The canal takes its departure from the metropolis, at the Pool in the river Thames, and certainly no place more proper, as that may justly be termed the centre of commerce to the British empire: further, conveniency points out to us the propriety of entering the river at that part most frequented by colliers, especially as coal will form so large a portion of the trade upon this canal; and I am happy to say a most eligible situation presents itself for that purpose, a little below the King's Mills, at Rotherhithe, in which place an extensive basin may be constructed, for vessels and craft of every description to lie in, and a sufficient site of ground remain for constructing all the necessary wharfs, warehouses, &c. This situation will be peculiarly advantageous from its locality to the entrance of both the proposed docks on the north shore; for should any goods be purchased from them in the morning by an inhabitant of Surry near the route of the canal, he may receive them home by evening with all the facility and cheapness attendant upon water carriage.

The line or main trunk of the canal I then propose to pass from the basin nearly in a south direction to the west end of Greenland Dock,

Dock, into which place an advantageous collateral cut may be made to form a communication with that place, into which barges may go, and either unload or receive their lading from alongside the shipping lying there; the line then continues further south, approaching the back of his Majesty's Victualing Office, and King's Yard, Deptford; into which place a collateral cut may be carried for the use of those national depots. The line I then propose to terminate at the north-west point of the town of Deptford, from whence it takes nearly a direct west course, passing in the neighbourhood of Peckham to the north end of Camberwell, and thence in the same route to Kennington Common; from whence it proceeds more to the north-west, forming another communication with the river Thames, beyond Vauxhall, near Cumberland Gardens, South Lambeth. From this main line I propose an important collateral cut, in which the commercial inhabitants of Southwark are materially interested, from the facility it must give to their trade and commerce into the county of Surry. This cut I propose to pass in a south direction from near St. George's Church, on the east side of Blackman Street, to form a junction with the main line between Walworth and Camberwell: this part of the canal will probably have a greater portion of business upon it than any navigable branch in this kingdom, from its north extremity approaching so near the centre of the metropolis, within a distance considerably less than one mile from the most busy part of the city. When it is considered this water communication unites such populous towns to so great a metropolis, the vast number of barges and passage-boats with passengers that will be perpetually passing and repassing on this part of the line can only be conceived by persons who are acquainted with the vast population of the county. The continuation of the main trunk of the canal is nearly south from a basin to be formed on Kennington Common; it keeps close on the east side of the Streatham road to Stockwell, and near the bottom of Brixton Causeway. The

The whole of the line already described, with a little deep cutting towards Stockwell, may be executed on one level, which is of the highest importance, being so near the vicinity and surrounding the metropolis, where there will be no obstruction or delay in passing locks, &c. Beyond Stockwell, the rise of the land will render it necessary to adopt an inclined plane, in order to obtain an higher level, and so pass further in a south-west line, affording water communication to Clapham, Balaam Hill, Streatham, Upper and Lower Tooting, and Merton Mill. The line is then continued nearly west, to the west of Mitcham; here it crosses the river Wandle by an aqueduct, and as such takes no water from that stream. I propose a collateral cut from the main canal near this place to pass through Mitcham, over Mitcham Common to Carshalton and Croydon*.

The main line, after crossing the river Wandle nearly in a west line, to the south of Merton, extends itself to Kingston: within about a mile and a half of its reaching Kingston, on Norberton Common, the main line will take nearly a south direction, passing close to Maldon, Ewell, and to Epsom.

* In the latter end of last year I made a survey for a canal from Croydon to the Thames, by order of the gentlemen interested therein; and as my instructions were to effect the most direct communication with the river Thames, consistent with the intention of the canal, I recommended its route to be through part of Kent, by way of Beckenham and Lewisham; but it must be acknowledged that would be but a partial canal, and at the same time they will be accommodated by this in a much superior manner and in a more eligible way, as we shall approach the town on a lower level, and give them two entrances into the Thames, and an immediate communication with the Borough of Southwark, and a number of large towns and villages situate near the other parts of the canal; a circumstance which cannot fail, by facilitating the intercourse, *to increase the trade and commerce, and greatly promote the prosperity of the town of Croydon.*

Although

Although my instructions were at present, not to continue this survey beyond Epsom, yet I could not refrain from taking a further view of the county ; and I am happy to observe, that, when hereafter deemed necessary to extend the canal, it may easily be done, either in a south-west or west line through the county, and in process of time open a communication with Southampton and the metropolis. When this is completed, mercantile goods of every description may be conveyed from the British Channel to London ; and by this extension many important advantages may be gained, in particular to Government, who would be enabled to send their warlike stores, provisions, &c. from the great depots on the river Thames, to the dock-yard at Portsmouth, the fleets at Spithead, &c. free from the present circuitous route, or sea hazard, or detention from the absolute necessity of two winds to convey them round the North Foreland, thereby avoiding a dangerous navigation of about 220 miles.

The whole of the line that I have described, will form about 28 miles navigation, through the most populous part of the kingdom.

Taking into consideration such circumstances as would attend upon this canal navigation, I recommend it to be upon a scale of 26 feet top water, the canal not to exceed 4 feet within soil, with proportionable slopes to the bottom, with inclined planes to be wrought by a steam engine.

This canal would admit the conveyance of a vast quantity of traffic, and would, I flatter myself, be fully equal to the wants and accommodation of the county. Boats from 10, 15, and to 20 tons may navigate upon it, but probably those of 10 tons will be found most convenient, as one horse may draw 6 or 8 in a fleet, linked together ; which would be found extremely convenient, as one or more of them may be left at the place her lading is consigned to,
without

without (as is usual on some other navigations) detaining a large and inconvenient barge to land a small portion of her cargo. Another advantage of a canal of this nature will be, that there is no waste of water, excepting a small portion expended by absorption and evaporation; but as I propose returning the water from the lower to the upper level, that will be sufficiently supplied should there be any occasion, which I apprehend will only be during the drought of summer. I must also observe, that many excellent situations for reservoirs present themselves on the commons the canal will pass over, which if necessary we shall certainly avail ourselves of.

It may further be noticed, that this canal takes up but a small and narrow slip of land (scarce the width of many turnpike roads), and goes through a number of commons and waste lands; a circumstance which not only benefits the country, but materially tends to reduce the estimate for its execution in the price of the purchase of land; it also passes through no gentleman's parks or pleasure-grounds, neither interferes with, or injures any mills or mill-streams.

I shall now mention the general expense for the execution of this canal; although a minute detail is not to be looked for in this introductory Report, yet it will be satisfactory for the promoters to understand that the whole sum will not exceed £87,000, as appears to me from the calculations I have made; for which estimate, if required, I have no objection to engage for the execution.

I shall now consider the presumed tonnage that will pass on this navigation, the tolls drawn from which are to refund and reward the laudable shareholders for advancing the capital for its execution: and here I consider circumstances, look forward, and with pleasure find, that the sources of tonnage are neither small nor transitory, or
that

that may be speedily exhausted, as those drawn from mines, quarries, &c. ; but are of a lasting nature, and such as, from the improvement of the country and the good effects of the navigation, must be perpetually on the increase.

The canal will be enabled, at a much cheaper rate than can be done at present, to supply all the towns it passes through with coal, the consumption of which, for so many and such populous places, must be very great; and as I am informed from the best authorities, cannot, for the following towns, of Peckham, Peckham Rye, Camberwell, Walworth, Stockwell, Clapham, Balaam Hill, Upper Tooting, Lower Tooting, Merton Mills, Wimbledon, Maldon, Sutton, Cheam, Epsom, Ashted, Leatherhead, Mickleham, Dorking, Pet-
cham, Bookham, Effingham, Sundrich, Brafted, Westerham, Limsfield, Oxted, Croydon, East Grinstead, Meesham, Bletchingly, Nutfield, Reigate, Banstead, Ewell, Morden, Mitcham, Carshalton, Streatham, and Godstone, independently of many other towns and villages, be estimated at less than 47,000 tons per annum; which supposing only to pass on an average 12 miles on the navigation, at twopence per ton per mile, is £4,700 per annum. But it is not to coal alone the tonnage from London will be confined; for large quantities of dung, ashes, groceries, manufactured and foreign goods, will be continually sent to the different towns and villages near the canal. The whole of the latter, taken at the lowest calculation, is 24,000 tons per annum; which passing on a mean 12 miles on the canal, at twopence per ton per mile, is £2,400 per annum.

The return carriage to London will be very considerable, and will consist of timber, grain of all kinds, hay, straw, flour and other meals, wrought iron, wrought copper, calico goods, oil and oil-cakes, bricks, tiles, chalk, lime, fuller's-earth, charcoal, quarry-

stone, malt and hops, with large quantities of potatoes, and every species of vegetable produce; the whole of which may be fairly estimated at 12,000 tons per annum, passing on an average 12 miles on the navigation, at twopence per ton per mile, £1,200 per annum.

Thus it appears the tonnage from London is 71,000	£.	s.	d.
tons per annum, yielding	-	-	-
	7,100	0	0
And the return tonnage to London is 12,000 tons,			
per annum	-	-	-
	1,200	0	0
Total annual produce	-	-	-
	8,300	0	0

A sum sufficient to warrant the expenditure of above double the sum necessary; indeed, the article of coal alone is fully sufficient to the estimate. But there is another source from which a considerable revenue will redound to the subscribers; I mean trekschuyts or passage-boats, which will be fitted up with every conveniency, and statedly go to the different towns and villages on the line with passengers and their luggage; and there can be no doubt but the generality of people will prefer this comfortable, pleasant mode of travelling, not only from being free from dust, and many of the inconveniences of coaches, but on account of the cheapness of the passage, which will be at least one half less than by the stages. To show the facility with which passage-boats go, I need only mention that by means of those on the canals of Holland, an inhabitant of Rotterdam may breakfast at the Hague, dine at Leyden, and sup at Amsterdam, and return home that evening. And in our country many people are well acquainted with the passage-boats on the Duke of Bridgewater's canal and others, and are sensible of that pleasant mode of travelling, and know that they go as fast and as regularly as the coaches.

The

The distances from the bason in Southwark to the undermentioned places by the canal, will be nearly as follows.

	MILES		MILES
To Camberwell	1½	To Merton Mill	8½
Peckham	2	The centre of Mitcham	9½
Deptford	4	Merton	9½
Stockwell Common, and the bottom of		Carshalton	10½
Brixton Causeway	3½	Croydon	12
Clapham	4½	Wimbledon	10½
Balaam Hill	5½	Kingston	14
Upper Tooting	6½	Malden	13½
Streatham	6½	Ewell	15
Lower Tooting	7½	Epsom	16

Should an instance be required of the great utility of canals towards the increase of commerce, let gentlemen turn their attention to Liverpool and Hull, and they will see that exemplified in the clearest light. But to mention the latter place only. In the year 1781, Hull began to feel the most valuable effects from the canals which communicated with that now flourishing town; the Custom-house of that place paid into the Exchequer that year the net sum of £101,393; and in consequence of the canals in that part of the country increasing, in the year 1784 the sum was £143,467; in the year 1791, £171,000; and in the year ensuing, £200,000: a great argument in favour of canals, and a sufficient proof that they aid commerce.

The opening of inland navigations in this country has given rise to manufactories, and has enabled them to work raw materials, that without their aid would never have existed. Further, canals have encouraged

couraged old manufactures to work with fresh vigour when they could obtain their coals or materials cheaper, and their wrought goods could be cheaply conveyed to different parts of the country.

Canals and navigable rivers, by diminishing the expense of carriage, put the remote parts of the country more upon a level with those in the neighbourhood of large towns; they are on this and many other accounts the greatest of all improvements. They improve the distant parts, which are always the most extensive circle of the country; and thereby rents are much improved. They are advantageous to towns by breaking up the monopoly of the country in their vicinity; and they are beneficial to all parts of the country; for though they introduce some new commodities, they open many new markets for their produce. These things have been the happy effects of canals, and many of them may be reasonably expected to follow on the completion of this.

The expense of land conveyance lays a prohibition on the carriage of all bulky articles, but water-carriage reduces that expense to at least one third or one fourth. Those kind of watery roads need but few repairs; but turnpike roads, from heavy carriages traversing them, are incessantly in want of reparation: of this, and the inconveniency of bad roads, a person may be soon satisfied by viewing in a winter or wet season the roads in the county of Surry.

Whilst pursuing a journey through Surry some time back, on my meeting a number of carts and waggons, heavy laden with coal, timber, and other ponderous bodies, and with difficulty drawn along a bad road, I must confess it drew from me this reflection: Why not use the improved arts of life? let your system be changed for the more ready and cheaper conveyance of water carriage, where one horse will do the labour of thirty: the others will be far better employed in the useful works of agriculture.

I am

I am informed there are not less than 200 horses constantly employed by the mills and other works on the river Wandle only, passing goods to and from the metropolis. On this canal 7 or 8 horses would perform that labour with great ease, and occasion less friction to the goods than is possible by land carriage.

As one horse on an average consumes the produce of four acres of land, and there are 1,350,000 in this island that pay the horse-tax, of course there must be 5,400,000 acres of land occupied in providing provender for them. How desirable any improvement that will lessen the keep of horses, and save thousands of pounds in importing grain into the kingdom for their subsistence !

The ridding the nation of the keep of such a number of horses is of high importance, not only to individuals but the community at large, especially in a commercial country like this, where grain is so dear. The land which is engaged in rearing the provender which they devour, might be usefully laid out in wheat and barley, and would yield subsistence for many thousand souls.

In order to conceive many of the agricultural advantages that would result from the execution of this plan, permit me to direct your attention to those places where canals are already completed, and you will see the barren heath that formerly scarcely produced a scanty subsistence for a few wandering sheep, now turned into excellent arable land, teeming with luxuriant crops, contributing to increase the comforts of life and to diffuse plenty around. In other places you will find low swampy grounds, that neither man nor beast could traverse, drained and converted into rich pastures for fattening and rearing cattle. Many others I might mention ; but it would be a departure from the brevity I have hitherto pursued, and mean to pursue : I shall therefore proceed to point out some of the most promi-

ment agricultural improvements that will be effected by the canal under consideration.

To the farmer many benefits must arise, but in particular from the being freed from the present expensive mode of carriage, and the non-necessity or expense of sending his team, men, and horses, with the produce of his lands to market, oft-times at a period when he can ill spare them from the ploughing, cleaning, wheat-sowing, and culture of his grounds; by the canal he may send a quantity of grain, hay, straw, or any other produce for £1; whereas by land the conveyance of the same quantity will be £3 or £4: independently of the greater certainty of their times of arriving at market, a matter of no small consequence, as it is owing to bad roads and the general uncertainty of land carriage, that our markets are sometimes so scantily supplied, as to occasion frequent rises and fluctuations in the prices of peas, beans, potatoes, and other vegetables in the course of a few hours, the metropolis being daily supplied with considerable quantities of those articles from the country within 10 or 15 miles of it. But should the farmer or gardener keep his own boat, he will be considerably the saver, may visit several towns in the course of a day, and be enabled to ship his corn, hay, straw, or whatever it may be, from his own lands or barn as it were, and return with a load of ashes, lime, or dung, for the use of the farm.

If we for a moment consider the valuable effects derived from canals by irrigation, in promoting vegetation, we must be forcibly struck with the utility of this, particularly in dry seasons; for chemical analysis has discovered that the principles essentially present in the composition of all vegetables, of whatever order or species, are, *carbon*, *hydrogen*, and *oxygen*, with frequent addition of *azote*. These being the elementary constituents of vegetables, the
only

only things fit to promote vegetation as manures, must be matters, which either themselves afford directly more or less of these principles, or else tend to make other bodies containing those principles to give them out more readily. Water has been discovered to be a compound of hydrogen and oxygen, two of the elements of vegetable matter, and, besides its fluidity, renders it capable of acting as the *solvent* and *vehicle* of almost all other matters that can yield nourishment. Possessing these qualities, water is in almost every variety of circumstances the best of all manures; it is by the economy of nature more calculated than any other substance to promote the growth of plants: unless when absolutely stagnant with unwholesome impregnations, or overflowing with the rapidity of a torrent, it never fails to prove beneficial. The borders of springs, the bank of brooks, the plains overflowed by great rivers, have ever been observed to display a luxuriance of vegetation, which sufficiently evinces the fertilizing powers of water. And here I am happy to observe the county through which the navigation passes, may in many places be well irrigated with an abundant supply of water which can be spared from the canal for that purpose; a consideration of no small moment to lands or gardens, many of which are sometimes in the greatest want of this article, the acquisition of which would be of the most beneficial and valuable effect.

The high importance the canal will be to this part of the county in removing that great barrier to improvements, a heavy land carriage, and in promoting agriculture, must be very conspicuous, as it is notorious there are now many lands absolutely nearly useless, for want of being able to obtain manure at a reasonable rate, which by land or the present water conveyance they cannot; this the canal will obviate, and give opportunity of drawing, at a cheap rate, a plen-

teous supply of ashes, dung, and other manure for their improvement from the metropolis. In short, the canal, by giving the means of improvement, will be particularly favourable to the landed interest; more persons will now come and settle on the banks near the navigation, for the benefit and convenience of trade; and from hence, and the cheapness with which manure may be procured, they will enclose those dreary wastes, and render fertile those barren lands; an advantage of great importance, as the waste lands and commons near the proposed canal are very extensive, and much more so than might have been expected in so populous a county. Their being situated so near the metropolis is a circumstance which must render them very valuable if improved, for which the navigation will present the opportunity, many thousand acres of them being capable of being cultivated, and turned into either arable, pasture, or meadow of good quality, the profits from which would far exceed the expenditure, and the produce would cause an increase of provisions, which must proportionably affect the price, and give relief to many thousands of poor families.

Many other improvements and advantages which would evidently result from the canal, that I have not stated, will occur to the reader locally acquainted with the country; however, those already enumerated are great, and will be still greater, and in a little time equal any canal in the kingdom; they are such as must lead every candid mind to exclaim, that it is a design which appears calculated to facilitate commerce, to increase manufactures, to promote and extend agriculture, and to diffuse convenience, comfort, and plenty over an extensive part of the country, and that it holds out such favourable circumstances as cannot but evince the propriety of the plan, and that it happily combines infinite public benefit with great private advantage.

To

To a reflecting mind, to a lover of his country and public improvements, this canal will appear highly useful; he will see in it the source of many advantages both public and private, dwell upon it with satisfaction and admiration, and be surprised that the execution of a work so much wanted and so abundantly replete with blessings to the present and future ages, should have been deferred to this period.

I am,

My Lords and Gentlemen,

Your very humble servant,

R. DODD.

35, *Whitehall*,
May 14th, 1800.

C

Lowell, Mass. 1850. I have the honor to acknowledge the receipt of your letter of the 10th inst. and in reply to inform you that the same has been forwarded to the proper authorities for their consideration. I am, Sir, very respectfully,
Your obedient servant,
R. B. DODD.

R. B. DODD.

Wm. W. L. 1850.



Printed by J. G. Smith, 1850.

